SQUASH, WINTER (*Cucurbita pepo* 'Table Queen')
Powdery mildew; *Podosphaera xanthii*

M. L. Adams and L. M. Quesada-Ocampo Dept. Entomology and Plant Pathology, NC State University, Raleigh, NC 27695

Evaluation of fungicides for control of powdery mildew of winter squash, Cleveland 2016.

The experiment was conducted at the Piedmont Research Station in Cleveland, NC (N35°41.916'; W080°37.707'). Plots were single beds on 5-ft centers covered with white plastic mulch; 14-ft long with 5-ft fallow borders on each end and non-treated guard rows on each side. The previous year the field was planted with soybean followed by buckwheat as a cover crop. Squash was direct seeded on 25 Aug (2-ft in-row spacing, 2 seed/hill) in raised beds and thinned to one plant per hill after emergence (7 plants/plot). Irrigation and fertilization (20-20-20, N-P-K) were applied via drip tape on 23 and 30 Sep. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO_2-pressurized backpack sprayer equipped with a single-nozzle, handheld boom with a hollow cone nozzle (TXVS-26) delivering 40 gal/A at 45 psi. Applications were made on: 8, 15, 22 and 28 Sep and 6, 13, 20 and 28 Oct and 2 Nov. Fruit were harvested on 10 Nov. Disease severity was assessed on 3, 13, 20 and 28 Oct and 2 and 8 Nov as percentage of total area colonized by *P. xanthii*. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and the Waller-Duncan test to separate means.

Powdery mildew was first detected on 28 Sep at very low levels (2%) in the field. Disease progressed throughout the course of the experiment. Vivando provided outstanding control of powdery mildew as no disease was observed throughout the trial. Quintec, Quintec alternated with Procure and Viathon also provided excellent control of *P. xanthii* throughout the trial. No phytotoxicity was observed. In the table, treatments are sorted by the final disease severity rating on 8 Nov.

		Disease severity[z] (%PM)		
Treatment and rate of product per acre	Application no.[y]	28-Oct	2-Nov	8-Nov
Vivando 2.5SC 15.2 fl oz	1-9	0.0 d[x]	0.0 d	0.0 e
Quintec 2.08SC 4 fl oz	1-9	2.5 d	3.8 d	4.3 de
Quintec 2.08SC 6 fl oz Procure 480SC 6 fl oz	1, 3, 5, 7, 9 2, 4, 6, 8, 9	3.8 d	4.3 d	4.8 de
Viathon 3.66SC 4 pt	1-9	5.8 d	7.8 d	9.3 d
Mettle 125ME 5 fl oz Torino 10SC 3.4 fl oz Quintec 2.08SC 6 fl oz Procure 480SC 6 fl oz	1, 3, 5, 9 2, 4 6, 8 7	26.5 c	29.8 c	32.0 c
Mettle 125ME 5 fl oz	1-9	27.5 c	34.0 c	40.3 c
Torino 10SC 3.4 fl oz	1-9	38.0 b	48.3 b	59.5 b
Non-treated	N/A	54.8 a	69.0 a	82.3 a

[z] Disease rating scale based on percent of total leaf area colonized by *P. xanthii*.
[y] Application dates: 1=8 Sep, 2=15 Sep, 3=22 Sep, 4=28 Sep, 5=6 Oct, 6=13 Oct, 7=20 Oct, 8=28 Oct and 9=2 Nov.
[x] Treatments followed by the same letter(s) within a column are not statistically different (*P*=0.05, Waller-Duncan k=100).